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being sixteen inches, width twelve inches at one end and six inches at the other. The bottom of the cavity is eight inches below the edge of the hole, and the top of the nest was entirely open, being formed in the stump of a broken-off limb. The birds were not present, but the nest contained seven eggs, four of which were fresh, one slightly incubated and two well advanced. Among the pellets, etc., were probed out thirteen fresh meadow mice.

From my experience, the number of eggs laid ranges from five to seven, and incubation lasts about three weeks for each egg. The earliest date recorded for fresh eggs is March 10, and the latest September 14.

THE TERNS OF MUSKEGET ISLAND, MASSACHUSETTS. PART III.

BY GEORGE H. MACKAY.

I HAD about concluded that I would not take any detailed notes this season on the Terns of Muskeget, intending simply to visit them once or twice during the summer in order to ascertain how they were breeding. In furtherance of this plan I visited the island on June 26 and 27, 1896. *Once there*, I thought I should like to know how they were laying in comparison with other years, especially 1895. I therefore asked Mr. Sandsbury to get his boat ready and we soon started for my favorite Tern resort, Gravelly Island. Our near approach was heralded as usual, and we were greeted with protests by the large assemblage of birds, considerably augmented since last season. Notwithstanding their protests we checked off every nest and egg we could discover. It was evident from the number of birds in the air, as well as the eggs discovered, that the increase from last season had been greater than in any former year. My observations last season have been further strengthened this, that *Sterna dougalli*, where the means are available, builds a better nest and conceals it more carefully than does *S. hirundo*. I saw a good many Roseate nests last year, as

also this, that had tunnel or burrow entrances to them in the high, luxuriant beach grass (*Ammophila arundinacea*); such nests are common on Gravelly Island. I also wish to observe that this year the Wilson Terns built better nests than I have ever known them to do before. I have no reason to offer for this change. The usual two or three Roseate nests were found close to the house on this island; one of these, within five feet of the house, contained two eggs, another, within three feet, contained three eggs. The chicks noted here, are only what I personally observed. I saw no dead ones on the island, and I feel fairly safe in saying, that one thousand young birds have been raised there this season. The condensed result of the nests and eggs found here is as follows.

Gravelly Island, June 26, 1896.

72	nests of 1 egg each,	72
239	" 2 eggs "	478
168	" 3 " "	504
2	" 4 " "	8
none	" 5 " "	none
<hr/> 481		<hr/> 1062

In addition to above were

7 nests of 2 eggs each and 1 chick

3 " 1 egg " " 1 "

Found away from nest, 9 chicks

Leaving Gravelly Island we continued on to *South Beach*. Here we also noted more eggs than usual, nevertheless I failed to certainly identify any of them as being Arctics (*Sterna paradisæa*), though some of them looked to me as if they were such and the birds themselves were in the air overhead. The following is an account of what was observed here.

South Beach, June 26, 1896.

None,	nests of 1 egg each,	none
9	" 2 eggs "	18
8	" 3 " "	24
1 nest of	4 " "	4
None, nest of	5 " "	none
	Dropped eggs,	1
<hr/> 18		<hr/> 47

In addition to above were

1 nest of 1 egg each and 1 chick
 3 nests of 1 " " 2 chicks
 1 nest of 2 eggs " " 1 chick
 Found away from nest 4 chicks

It required but a few strokes at the oars to place us on *South Point Island*, which can now no longer be designated as such, it having been joined on about three weeks ago to the south point of Muskeget Island, from which it had originally been severed by the ocean. This is one of the favorite breeding places of the Terns, and they congregate here in large numbers, all three varieties being intermingled. I was able to perceive considerable increase from the numbers which were domiciled here last season. The following gives the nests and eggs observed here.

South Point Island, June 26, 1896.

57	nests of	1	egg each,	57
308	"	2	eggs "	616
283	"	3	" "	849
9	"	4	" "	36
2	"	5	" "	10
<hr/> 659				<hr/> 1568

In addition to above were

8 nests of 1 egg each and 1 chick
 8 " 2 eggs " " 1 "
 Found away from nests, 23 chicks
 Dropped eggs, 5

On June 27, 1896, I started early in the morning (without Mr. Sandsbury, he being unable to accompany me) to walk over and check off the eggs on the island of Muskeget proper. When I reached the line where the nests commenced, and which had been considerably extended since last year, and surveyed the extent of territory to be traversed and examined, the difficulty of successfully accomplishing the work alone became apparent, and believing the result as thus gathered would prove unsatisfactory to myself, and unreliable for record, I abandoned it, and also for the reason that I could not possibly do it, and in addition, check off the nests

and eggs in the colony of Laughing Gulls (*Larus atricilla*), which I considered the more desirable data for present record. I, however, walked all through the breeding area on two separate lines, in order to acquaint myself with the conditions. I suppose it is safe to say that there are many more Terns here this year than last, but it would be difficult to substantiate the statement by evidence. The fact is that the birds have now reached such numbers as to render even an approximate estimate useless. Great as the aggregate may be, there is yet ample room on Muskeget Island proper alone, for several times the present number, whatever it may be, to breed.

Of the eggs viewed on the various islands this season I did not see one other than normal ones.

The first arrivals of the Terns this season was on May 4. (They commenced to arrive on the night of May 9 at Penikese Island, Massachusetts, and by the 11th were apparently all there.) A dense fog prevailed at the time when they were first heard high up in the air. The fog lifting for a short time later in the morning, disclosed about a dozen birds. On May 8 Mr. Sandsbury noted fifty Wilson Terns, the weather still continuing foggy. On the 9th it cleared and the Terns were seen in thousands over Muskeget Island proper. On April 27, 1896, Mr. Sandsbury observed four Least Terns (*Sterna antillarum*) for the first time this season; on the 30th he saw about a dozen. On May 31, 1896, Mr. Sandsbury noted seven nests with one egg each; two nests with two eggs each; and one nest with three eggs.

As this happened to be the first walk he took to look for eggs, it does not follow that they were the first of the season. On June 9, with Mrs. Sandsbury, who assisted in the search, he walked in a direct line from his house towards the north shore of the island and returned by another route not covered by the first. The following is the result noted.

25 nests of 1 egg each, 25				
112	"	2 eggs	"	224
205	"	3 "	"	615
13	"	4 "	"	52
7	"	5 "	"	35
<hr/> 362				<hr/> 951

My next visit to Muskeget was on July 26 and 27, 1896. On the former date the sun was overcast but with a very clear atmosphere, so much so that I could easily distinguish the less distinct markings of the birds in the air with great accuracy. I visited Gravelly Island first, as usual, and with Mr. Sandsbury looked it well over. He informs me the first young birds he casually noticed in the air about Muskeget Island proper was on July 19.

We found scarcely any chicks here which were unable to fly, and there were large numbers of young birds in the air all around the island. We counted in all fifty-four dead chicks here.

Proceeding on, we soon landed on the *South Beach*. As I have before stated, the atmosphere was peculiarly favorable for viewing birds in the air, and I have never but once before had a similar experience here; as a result, I selected and shot nine Terns which were flying overhead with the idea of their being *S. paradisæa*, (two of them were shot on South Point, Muskeget Island); eight of them proved to be such; the other, with fully as dark underparts, had the black-tipped bill of the Wilson Tern (*S. hirundo*). I saved the other skins, but not this one. I saw other Arctic Terns, besides those taken.

All the Terns here are very gentle and tame, and show a marked contrast to the Terns of Penikese Island, Massachusetts, which are wild and shy, the result of the treatment they have been subjected to. I found but few chicks here unable to fly; all the others were in the air about us; there were quite a number, however, which could not sustain themselves in the air for any great length of time.

Crossing over to *South Point Island* we found the same conditions prevailing, the young birds were mostly in the air and we saw comparatively few chicks unable to fly. Walking over the recently formed beach, which now connects this former island with Muskeget Island proper, we reached *South Point*. I noticed here twenty-four dead chicks; in other respects the conditions were identical with those on South Point Island.

On July 27, 1896, I walked over all the breeding grounds on Muskeget Island proper, where incubation was also practically over. There were, of course, more or less eggs observed, but the percentage they bore to the original number was very small;

neither did I notice but few chicks which were unable to fly; everything in fact evidenced a most successful and prolific breeding year for the birds. As the whole month of July had been wet and cold, with a very heavy gale, accompanied with torrents of rain, commencing on the night of July 4 and continuing until the afternoon of the 5th, I feared that a diminution in the number of young birds might be expected as a result of these conditions. Contrary, however, to these expectations nothing disastrous took place. The young were flying earlier than usual, and I cannot help thinking that the mortality among the young chicks from natural causes was less than usual. It will certainly be a grand sight to see them all here next season.

During my first visit here, June 27, 1896, I observed one Short-eared Owl (*Asio accipitrinus*). This bird evidently had a mate, and together they raised a brood of four young, for during my last visit I noted six on the 27th of July. I devoted much time in trying to get near enough to shoot them. After much labor, as they were very shy, I killed one of the younger ones, which was fully grown. Together they must have destroyed a good many young Terns this season, and are likely to return next year to their breeding haunt.¹ It was particularly interesting to note with what perfect indifference they received the attacks of a thousand or more Terns which collected around them, whenever they appeared in the air, and even when alighted on the sand there was usually a large concourse hovering over them. I could not perceive that the Terns annoyed them in the least.

As heretofore, I desire to say a few words regarding the status of the Laughing Gulls (*Larus atricilla*) for 1896. For several days previously it had been thick, foggy weather; when it cleared, on May 9, the Laughing Gulls were heard for the first time this season. On the 17th of May Mr. Sandsbury noted that there seemed to be more of them than usual. On May 29 he wrote me that he "never saw so many." On June 27, 1896, I carefully walked all over their breeding ground, which is the same as last year, and the only one on these islands. It is located on the

¹ All but one were shot before the close of the season. The one left was probably a migrant, as six in all had been killed.

northern side of Muskeget proper and has gained this year a little in length and width. In length it has now reached its westernmost limit; any future increase in area, owing to the nature of the ground, will probably be towards the eastward. Three nests, one of three eggs, and two of two eggs each were found in the marsh at the south side of Muskeget proper in July last. They were placed on top of some of the sand hillocks. I found in all thirty-two nests, containing seventy-nine eggs and one chick. There were *no concealed* or alley nests noticed this year, the birds apparently not considering such precaution necessary. They were also tamer than I have before observed them to be. One nest, located on the top of the south ridge of the valley where they were breeding, had three well-worn, distinct pathways leading to it. The nest and eggs were without any concealment. It would seem quite conclusive that these Gulls never alight *on* the nest, but a little distance away and walk to it. There are more of these Gulls here this season than last; the increase is necessarily small, as the colony is not large. If undisturbed they will continue to return and do well, but I do not think they will submit to much harassing. A list of their nests and eggs is as follows. Only one chick was noted, about two days out of the shell.

Muskeget Island, June 27, 1896.

4	nests	of	1	egg	each,	14
9	"	2	eggs	"		18
19	"	3	"	"		57
32						79

On July 27, 1896, I went over all this ground a second time. With the exception of half a dozen or so, all the eggs had been hatched, as was evidenced by the many broken shells lying about. I found but one chick in the grass, although I searched very carefully, and I am puzzled to know where they hide themselves, as I did not see a single *young* bird in the air, nor did I July 30 last year. The old birds were sitting all about, and concentrated on their breeding area, often in groups. I did not note a single dead chick; I have in fact *never* seen a dead one. I, therefore, think, taking everything into consideration, that these Gulls have

also had, like the Terns, a most favorable and successful breeding season.

In late advices from Mr. Sandsbury (October 2) he informs me that on this date the Terns had diminished about one half, and that almost every day large flocks could be seen going high up in the air and after circling coming down again, these actions being preparatory to setting out on their southern migration. This shows that the birds are remaining later than usual this season.

In advices from Penikese Island, Massachusetts, I learn that there were but few Terns remaining after September 1, and by the 17th, they had all departed.

The little beach mouse (*Microtus breweri*) has again become very abundant on Muskeget Island proper. The remnant which was preserved on South Point Island, some years ago, can now pass uninterruptedly over the newly formed beach which connects the two. On July 27, 1896, I took an adult male which was in the process of shedding its coat.



CRITICAL NOTES ON THE GENUS *AURIPARUS*.

BY HARRY C. OBERHOLSER.

PROFESSOR BAIRD, with his usual astuteness, was apparently the first to notice the considerable difference existing between the Verdins of Texas and those of Lower California.¹ He mentioned their contrasting points but did not regard these characters as of distinctive value. Mr. Walter E. Bryant,² in his remarks upon the genus, subspecifically separated the western form and bestowed upon it the name *Auriparus flaviceps ornatus*. Mr. Bryant was possibly not correct in supposing that the type of Sundevall's

¹ Review of American Birds, I, Aug., 1864, 85.

² Zoe, I, 1890, 149.